Extreme Events for Energy Providers

E3P aims at filling a gap between climate science and its practical use in the energy sector, and creating in turn favorable conditions for new business opportunities.

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Objectif

- **E3P rassemble scientifiques, PME et industriels autour d’une même table**

- L’étude: **les extrêmes climatiques** (vagues de chaleur, de froid, sécheresse, tempêtes) qui provoquent des pics de demande et affectent la production d’énergie.
L’étude de marché

Questionnaire:
• sent to Energy, insurance, re-insurance, water, construction sectors
• ~54 industries/groups listed over 10 countries
L’étude de marché

• Résultats:

- Wind speed for distribution sector, Sea level increase for nuclear power plant, flood
- The energy providers don’t seem to be not very interested in future climate.
- But they are interested in seasonal forecast.

Climate is not a big issue as long as the operators are covered by the insurances and they respect the quotas fixed by the State (ex: percentage of days of privation of electricity supply)

• Réorienter le projet:

- Sensibiliser le public et les fournisseurs d’énergie
- Réaliser des prévisions à moyen terme
Les produits

**Les indices** préconisés par les grands groupes industriels pour caractériser les vagues de froid

Temperature (tas):
- Number of days with temperature below -11 °C
- Number of days with temperature below 0 °C
- Number of days with temperature beyond 22.5 °C
- Number of days with temperature beyond 30 °C
- Number of days with temperature beyond 35 °C
- Seasonal Mean (JJM, AMJ, JAS, OND)
- Monthly Mean
- Wintear Mean (NDJFM)
- X% quantile of the winter mean temperature (NDJFM)
- Daily Minimum Temperature (tasmin):
- Number of days with tasmin below 0 °C
- Daily Maximum Temperature (tasmax):
- Number of days with tasmax beyond 40 °C

**Chaîne de traitement** des bases de données ENSEMBLES, CORDEX, DRIAS, CMIP5 pour calculer les indices

ARIA Technologies - 25 ans!
E3Pviz tool: an attractive way to provide interesting information on the future climate

- ENSEMBLES database and EUROCORDEX (coming soon)
- Temperature, Wind and Precipitation indicators
- Maps, Time series, box plot...
- Free subscription to the website for an access to the expert version

http://web.aria.fr/creator/E3P/index.php
Les produits
AnaWEGE (Yiou 2015)

20-years learning database
Daily sea Level Pressure
Daily climate variables
- variables: Tmin, Tmax, Tmean, wind, precip
- univariate or multi-variate
- Single station, multi-station or gridded data

New sequence of data to be simulated
d1 d2 d3...
a1 a2 a3...

Circulation map of d1, d2, d3...

Circulation map of d2, a2+1...

Analog selection from the database + association of climate variable(s)

Simulation of 500 summers
Error on q95 Tmean anomalies (°C)

Forecast – days since 2015/6/26
Tmean (°C)
Merci de votre attention!

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